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EXAMINER	
PADGETT, MARIANNE L	
ART UNIT	**PAPER NUMBER**
1715	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DocketingDept@young-thompson.com

Office Action Summary	Application No. 10/567,650	Applicant(s) SCHERER ET AL.	
	Examiner MARIANNE L. PADGETT	**Art Unit** 1715	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *3/9/10, 7/7/10 & 9/23/2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-9,18,19 and 21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-9,18,19 and 21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. When **Applicants' amendments** to the claims of 3/9/2010 & 7/7/2010 have been entered, with it noted that claim 2 has been canceled & it's limitations incorporated into independent claim 1, while cancellation of claims 10-17 & 20 removes or makes moot objections, prior art & 112 second rejections over these canceled claims, which were set forth in sections 1 & 2 of the action mailed 09/09/09. Independent claim 1 has been amended to remove terminology of unclear scope ("mostly", but it was left in claims 7 & 19) & adding limitations with respect to amorphous layer properties, structure deposited on, plus substrate requirements to the claim process. Claim 7 was amended to remove the majority of its relative & confusing language, but most the analogous problems of claim 19 remain. The amended claims are further discussed below.

Applicants' amendment to the specification of 9/23/10 has been entered, thus correcting the objection to the disclosure as set forth in section 3 of the action mailed 09/09/09.

The 102(b) or 103 rejections over **Hyodo** (2003/0148102 A1) or **Chien-Shing et al**. (EP 0 942 072 A2) or **Veerasamy** (WO 01/36342 A2), alone as set forth in sections 5, 6 & 7 of the action mailed 9/9/9, did not cover the limitations of now canceled dependent claim 2, hence this rejections based on these references individually are overcome.

The **terminal disclaimer** with respect to **SN 10/569,406** submitted on 3/9/2010 has been approved, thus removing the obviousness double patenting rejections as set forth in section 13 of the 09/09/09 action.

2. **Claims 1, 3-9 & 18-19** are rejected under 35 U.S.C. **112, second** paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicants have amended independent **claim 1** to require the deposited layer (F+C) = "exterior layer having a refractive index characteristic for fluorocarbons", however "fluorocarbons" encompasses a wide variety of compounds that may be in a wide variety of phases, such that it is unclear if there can be

said to be any refractive index that may be said considered characteristic of this entire class of compounds in its many manifestations, hence the scope of this limitation is unclear. While page 1, lines 7-10, in discussing "Certain fluorocarbon materials, when used in thin film layers, are transparent in the visible spectrum and have a low refractive index" provide an example of a particular fluorocarbon compound "polytetrafluoroethylene" having n = 1.35 at 630 nm, this example is for a particular fluorocarbon material under particular circumstances. Further discussion on lines 11-20, which appear to generically referred back to the "certain fluorocarbon materials" discussed above, discuss a desired use on antireflection coatings on ophthalmic lenses, stating that it would be "beneficial to use a material having a refractive index lower than that of silica (n~1.47 at 630 nm)", provides a general goal, but no defining range or scope, especially none that is applicable to the claimed amorphous layer of deposition process. The paragraphs bridging pages 8-9 through page 9, line 14, discuss deposition of a layer on a substrate in a configuration as encompassed by the amended claims, where it was measure to have a refractive index of 1.39 **at 600 nm**, which is a particular example for a particular deposit measured for a particular wavelength, not a general teaching of refractive index values for all fluorocarbons under all circumstances, thus the specification is not considered to define the scope of "a refractive index characteristic for fluorocarbons" as required in this amended claim. Note that new claim 21 recites a particular range, so does not have the problem with respect to scope as is present in the independent claim and all other claims which depend therefrom.

Note, lacking a clear scope for "a refractive index characteristic for fluorocarbons" any material made of carbon & fluorine might be considered to inherently have a refractive index characteristic of fluorocarbons of some sort, at least for purposes of examination over the prior art.

In the third to last line of **claim 7**, "mostly" is inconsistent with previous independent claim language, such that the so described "the exterior layer containing **mostly**..." lacks proper antecedent basis, plus this claim limitation has uncertain scope as previously described in section 2, on page 2 of the

action mailed 9/9/9. The examiner notes that aside from the "mostly", *as presently written*, the claim 7 limitation of "depositing the exterior layer..." appears to be essentially redundant, since as amended as lines 4-8 of independent claim 1 already require this deposition to occur, while lines 9-11 already recite the location (see objection below in section 4). Also see "mostly" in the last line of **claim 19**, which has the analogous issues.

As previously noted "each" is not terminology which properly shows antecedent basis, and while this was corrected in dependent claim 8, the analogous terminology is still present in **claims 9 & 18**, which recite "each deposition step", such that appropriate antecedent language would be -- each said deposition step --, where the examiner notes that the "depositing..." limitation is not *necessarily* included by these dependent claims (formerly or by implication), as it uses a differentiated term (part of speech).

As previously set forth on page 3 in section 2 of the action mailed 9/9/9, **claim 19** has undefined relative terms "**low**" & "**high**" used to describe "high reflective index" & "low refractive index", thus remains vague and indefinite, i.e. of unclear scope. Also, claim 19 has **not** been amended so that "**an** antireflection stack" (emphasis added) shows antecedents to the independent claims, i.e. the three layers described therein do not *necessarily* refer to the antireflection stack added to independent claim 1, such that it is unclear whether or not these claim limitations *necessarily* refer to the "antireflection stack" of the independent claim.

3. **Claims 1, 3-9, 18-19 & 21** are rejected under 35 U.S.C. **112, first** paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification was reviewed for support for both the generic claim of the deposited exterior layer of amended **claim 1** "having a refractive index characteristic for fluorocarbons", as well as the range for this defined in new **claim 21** of 1.35-1.39. No support for these new claim limitations was found. See

above discussion with respect to scope of the generic limitation of the independent claim, which indicates the three instances where the specification discusses specific refractive indexes with respect to an external layer &/or fluorocarbon, where the first disclosure directed to the exemplary PTFE film is ***neither*** generic, ***nor*** deposited by claim 1's technique; and the second disclosure is a goal, employing silica's refractive index as an upper limit to aim below, but lacks any direct or reasonably inferred connection to the results of the claimed process. While the third disclosure is a single example (n = 1.39 measured at 600 nm) for a particular exemplary deposition using a specific gas & specific parameters, thus these original disclosures <u>cannot be said to support either the claimed range</u> (claim 21) **or** <u>the general broad limitation</u> (independent claims) added by the 3/9/2010 amendment. Applicant's apparent assertion (third paragraph of the 7/7/2010 remarks) that page 1, line 16-19's discussion of silica, that it would be beneficial to use a material with a lower refractive index, is entirely unconvincing of supporting a particular refractive index range that does not appear to be discussed in the specification, nor does it provide support for the generic limitation added to independent claim 1, thus both of these new added limitations must be considered to be or encompass **New Matter**. Note that while the specification supports depositing amorphous layers containing F & C deposited via supplying fluorocarbon ions via the exemplary process (pages 8-9), the refractive index disclosed as "of the order of 1.39 at 600 nm", is only relevant to measurement at that particular wavelength, thus does not provide broad support for the claimed refractive index without regard to the wavelength at which it was measured.

Applicants have also amended independent **claim 1** to require that <u>the substrate has deposited thereon an ophthalmic lens</u>, on which is deposited and antireflection stack, which in tern has the claimed exterior layer containing F & C deposited on it. However, the examiner finds that **page 1**, lines 11-21 have discussion <u>where the substrates are ophthalmic lenses</u>, on which are coated antireflection coatings, with the apparent suggestion of the desirability of fluorocarbon materials replacing silica (i.e. *substrate = ophthalmic lens,* ***not*** *deposited on a substrate*). The particular embodiment starting at the bottom of **page**

7, discusses "an organic substrate 19 coated with... anti-abrasion varnished 20 is coated with antireflection stack comprising alternating thin layers of high and low refractive index 21(a-d)" in reference to figure 3, with **page 8**, lines 3-22, further discussing the stack's deposition, then page 8, line 23-page 9, line 10 discusses deposition of the amorphous fluorocarbon layer 21d, with further discussion on lines 11-28 directed to the properties of the amorphous fluorocarbon layer, and **page 9**, lines 29-30 stating "stacks obtained are therefore perfectly suitable to use on ophthalmic lenses", which is considered suggestive of using such lenses as the substrate, **not** deposition of lenses on a substrate *as presently* claimed. Therefore, applicants' amendment to independent claim 1 requiring "an ophthalmic lens deposited on the substrate" is considered to be **New Matter**.

If applicants' intent was for the substrate to be an ophthalmic lens, changing the claim language to read -- **wherein the substrate is an ophthalmic lens; and** wherein the amorphous... is... antireflection **stack deposited on the substrate** --, would correct this issue. For purposes of examination over prior art the examiner will consider claim limitations as literally written or performing the process on a substrate which is an ophthalmic lens, as it appears probable or possible that this inconsistency between the amended claims & specification is due to translational problems, such as with word order; however since a typical lens forming procedure is to use molds, it cannot be ruled out that the New Matter was intended.

With respect to **claim 6** that requires "the substrate is a plastics material substrate", which is now modified by the amendments to the independent claim, if applicants intended the claim as literally written neither mention of ophthalmic lenses on page 1, line 15, nor page 9, line 30, teaches them deposited on plastic material substrates, or alternatively if applicant's intent was consistent with the original disclosure as discussed above, there is no apparent mention of the taught ophthalmic lenses being plastic, thus the examiner found no support for this now claimed or possibly intended to be claimed limitations, so It appears lacking a showing to the contrary, claim 6 now contains **New Matter** as modified by the amendment to the independent claim.

4. **Claims 7 & 19** are **objected** to because of the following informalities:

With respect to "the exterior", in lines 6 of **claims 7 or 19**, while this term was never formally introduced in the independent claim from which claim 7 or 19 ultimately depends, there was sufficient orientation introduced in the independent claim in reference to "an exterior layer" + "an antireflection stack" + the substrate, that a person reading the claim would likely understand that "towards the exterior" was in reference to -- the exterior layer --, <u>however</u> for correct antecedents reference the correct noun, not just the adjective describing it, should be employed. Also note in **claim 19** that "the interior" lacks proper antecedent basis, such that it would be more appropriately amended to read -- an interior --, as was analogously amended in claim 7.

Appropriate correction is required.

5. The following is a quotation of **35 U.S.C. 103(a)** which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. **Claims 1, 3-9, 18-19 & 21** are rejected under 35 U.S.C. **103(a)** as being unpatentable over **Veerasamy** (WO 01/36342 A2), in view of **Knapp et al**. (6,077,569), or vice versa, <u>optionally</u> further considering **Chien-Shing et al**. (EP 0 942 072 A2) and **Klemm et al**. (6986857 B2).

Applicants have amended their independent claim to require refractive index characteristics of fluorocarbons be considered with respect to the deposited amorphous F+C layer, with the particular range of n = 1.35-1.39 required in a new dependent claim; plus requiring that the amorphous layer is deposited as an external layer on an antireflection stack of an ophthalmic lens, however the combination of external amorphous layer on such an antireflection stack was previously considered with respect to **Veerasamy** (WO), in view of Knapp et al. et al., as will be repeated below, with further discussion relating to new claim issues, such as ophthalmic lenses, which are discussed in col. 1, lines 15-40+, col. 2, lines 53- 67+; col. 3, lines 20-36+, etc. in **Knapp et al**. The amended independent claim also has claim language that may or may not be intended, which appears to be requiring that the ophthalmic lens is actually deposited on the substrate, thus the supported possibility that the substrate is the lens will be discussed with respect to Knapp et al., while the possibility that the lens is on a substrate will be optionally further discussed with respect to **Klemm et al**.

Also, **Veerasamy** (WO) has discussions of refractive indexes of their deposited fluorinated amorphous DLC coatings, where page 32 discloses embodiments with refractive index of the relevant coatings being from about 1.4-2.0, with specific examples of refractive indexes in fluorinated coatings being 1.75 & 1.65 as measured at 543 nm, where the exemplary non-fluorinated DLC coatings had n = 2.2. The examiner notes that the three data points show a trend of increasing percentage of fluorination having decreased refractive index. Veerasamy (WO) further teaches that one may independently tune the refractive index to match desired optical properties. The examiner notes that n= about 1.4 is in significantly different than 1.39, as the former has only two significant figures, thus considering only two significant figures 1.39 ≡ 1.4; hence while not explicitly teaching overlapping refractive indexes & not providing being a specific example having n= 1.4; it would've been obvious to one of ordinary skill in the art that "about 1.4" is reasonably inclusive of 1.39, which is also the only claimed reflected index value found to be partly supported in applicants' specification for the claimed deposit, <u>however</u> this refractive

index in applicants' specification was measured at 600 nm, while Veerasamy et al. is values are measured at 543 nm. The PTO cannot determine or test how measurement at different wavelengths correspond, or how use of different wavelengths for measurement will affect the n values for any particular material in a reference or in applicants' specification. Also these teachings of Veerasamy (WO) would have reasonably suggested routine experimentation employed to produce any of the taught range of refractive indexes, inclusive of about 1.4, for the taught fluorinated DLC protective abrasion resistant coatings (page 39-40), which as discussed on pages 2, 6-7 (bridging ¶), page 20 & page 39 are intended to be used on glass or plastic substrates, including optical substrates (e.g. windows), where pages 9 & 16-17 additionally suggest depositing this taught layer over multilayer coating is inclusive of low-E or silicon oxide + silicon nitride coatings.

As previously set forth, **Veerasamy** ((WO): abstract; figures 1-3, 9-10 & 13; p. 1, 2nd ¶; p. 6, last ¶; p. 8, lines 21-24; p. 11-12, bridging ¶; p. 13, lines 1-5, 14-19 & 22; p. 16, lines 18-p. 17, line 12; p. 20, 2nd ¶-¶ bridging to p. 21; p. 25, line 6-end of page; p. 26, all; p. 27 first ¶; p. 28, line 3-p. 29, line 14; p. 31, lines 3-p. 32, line 16, esp. p. 31, lines 15-17 & p. 32, lines 4-11; p. 36, sample #1) deposition of a hydrophobic highly tetrahedral amorphous diamondlike carbon coating via a plasma ion beam, which may include fluorine to improve the hydrophobicity and compositions of ta-C:SiO:F, which as exemplified by sample No. 1 on page 36 may be 54.6 at.% C +1.2 at.% F, thus is "mostly" or containing F + C. (*Also, as noted above fluorinated DLC, also containing claimed elements may have refractive indexes in significantly different than specifically claimed values*) The plasma apparatus as illustrated by figures 10 & 13, include ion beams that may be considered to be an "ion gun" & clearly accelerate ions, which has indicated on page 32 may come from CF_4 or CF_6 (e.g. C_2F_6?) gases, and as indicated on pages 25, 26, 28, etc. The gas composition for the plasma ion beam may also include oxygen &/or argon in the overall reagent mixture for depositing the DLC based coating. Substrates to be deposited on include glass or plastic, with mention of use on substantially transparent plastic, or for example on

automotive windshields that are combination of glass substrates laminated to plastic substrates, and the taught DLC coatings that may include fluorine may be deposited as a top protective coating over underlying "low-E" coating (13 US patents incorporated-by-reference to show exemplary coatings, with use of silicon oxide &/or silicon nitride underlying coatings specifically mentioned, page 17); where the resultant coated articles preferably have visible light transmission greater than 80% (page 20); & where the inclusion of F is taught to be employed to effect the refractive index in order to improve transmission.

While either of the primary, **Veerasamy** (WO) is directed to deposition of amorphous C & F containing protective topcoats that may be employed on optical substrates, the primary reference has no discussion of stacked antireflective coatings *per se*, deposited via PVD techniques, however **Knapp et al**. ((569): abstract; figure; col. 1, line 34-col. 3, line 37 & 65-col. 4, line 16; col. 6, lines 25-56; col. 7, lines 34-47; col. 8, lines 15-37 & 53-65+; col. 11, esp. lines 35-45 & 52-65) teach that dielectric coatings are commonly applied to plastic & glass substrates to achieve a variety of optical effects, where antireflective coatings (AR coatings) are one of the most common typical optical coatings, employing a multilayer coating structure composed of alternating layers of dielectric materials with relatively high refractive indexes & relatively low refractive indexes. Knapp et al. particularly discussed deposition of multilayer AR coatings stacks on many different types of lenses including specifying ophthalmic, with the intent that highly abrasion resistant coating layers are formed by ion beam assisted deposition techniques, including a top or outerlayer of DLC that provides additional abrasion protection & reduced surface friction (summary; col. 5, lines 18-67+; col. 8, lines 15-52+; col. 13, line 52-col. 14, line 38, etc.). Knapp et al. teach typical dielectric materials for such optical coatings, mentioning silica dioxide having n = 1.46, zirconium oxide with n = 2.05 & DLC with controllable refractive index between 1.7-2.2, all useful in an AR coating stack. In discussing exemplary abrasion resistant antireflection coating on lenses, Knapp et al. teach depositing a first coating on one or both sides of the lens, followed by deposition of a composite dielectric coating consisting of multiple layers of dielectric materials with at least two different indexes of

refraction (col. 13, lines 55-62), which configuration inherently requires at least one index of refraction to be higher than the other. These teachings, in combination with teaching of common AR coatings in the background, noting alternating layers of relatively high then relatively low dielectric material, the final (e.g. top protective) layer being relatively low, including specific mention of Zr oxide & Si oxide materials (col. 1, lines 34-col. 2, line 8), would reasonably have suggested to one of ordinary skill in the art antireflection stacks configured as claimed. Given these teachings & considerations, claimed AR stack order would have been further obvious considering teaching on upper layer properties as found on col. 14, lines 1237, which include the layer before the top layer being a high refractive index layer, with the top layer being a DLC layer having excellent durability & weatherability, <u>with specific mention of hydrophobic nature, hardness, low friction coefficient, abrasion resistance & cleanability</u>.

As <u>previously noted</u>, Knapp et al. further teach that is known to employ DLC deposited via direct ion beam deposition processes as top protective coatings on such AR stacks, where the prior art deposits AR coatings via various PVD techniques, such as electron beam evaporation or ion beam assisted electron beam evaporation, etc., but where improvement is still needed, especially with respect to plastic substrates for the deposition these coatings in order to provide a highly durable & abrasion resistant antireflective coatings on various optical substrates. Knapp et al. is teaching various abrasion resistant coatings & composite coatings deposited via plasma ion beam techniques using reactive precursor compositions & high vacuum, including topcoats of amorphous DLC, having high hardness, low friction coefficients, transparency across a majority of the electromagnetic spectrum & chemical inertness, where the DLC may also be doped with other atoms, mentioning N & Si. Knapp et al. notes that while evaporation & sputtering sources are not shown in their figure 1 plasma ion beam apparatus schematic, that such sources can be readily integrated therein (col. 8, lines 53-57).

It would have been obvious to one of ordinary skill in the art, given the teachings of Knapp et al. with respect to the desirability of DLC coatings as protective coatings having hydrophobic natures,

hardness, abrasion resistance, etc., for optical substrates inclusive of ophthalmic lenses with AR coatings, to employ such AR coatings deposited by conventional PVD techniques on the optical substrates inclusive of ophthalmic lenses, then employing the analogous DLC coatings of Veerasamy, specifically the taught protective amorphous DLC & F containing coatings, as Knapp et al. shows both the expected effectiveness & desirability of the AR coatings with analogous DLC protective coatings, plus the desirability of properties of hydrophobicity, hardness, abrasion resistance are taught to be desirable by Knapp et al., while Veerasamy (WO) further teaches that employing fluorine in the analogous protective DLC top coatings on optical substrates enables one to control the refractive index (data suggested that increased fluorine percentage lowers refractive index), which one of ordinary skill the art would reasonably have been expected to find desirable to control given the teachings of Knapp et al. for when coating of ophthalmic lenses, where the top protective coating is known to be desirably a relatively lower refractive index material as well as protective. It is further noted that Veerasamy may be considered to further show expected effectiveness of employing fluorinated DLC, as their various DLC coatings applied to similar compositions that are also optical substrates may or may not contain fluorine, thus providing compositions overlapping with those of Knapp et al..

Optionally, the above combination of references are discussed with respect to the substrate being an ophthalmic lens, which is supported in the original specification & a possible intended meaning of the claims; although as literally written, the ophthalmic lens with its antireflection stack is supposed to be deposited on another substrate; however as seen in the background of **Klemm et al**. (column 1, lines 15-35), it is common practice in the art to make optical articles such as ophthalmic lenses using two-part molds, where these lenses are commonly provided with several coatings to impart the finished lens with additional or improved optical or mechanical properties, inclusive of scratch resistant coatings, anti-reflecting coatings & a hydrophobic topcoat. The examiner notes that the halves of the mold in which such a lens is made, may be considered substrates with a lens deposit thereon. Since in the above

combination one may be coating one or both sides of the lens with coatings of types & sequences recognized by Klemm et al. to be conventional in the art, it would've been further obvious to one of ordinary skill in the art when coating one side of a lens (e.g. ophthalmic) to employ a lens which has been produced by being molded in a conventional 2-part mold, where one half of the mold may be retained during coating of the side be coated (or the first side to be coated), thus it would be considered to be "on a substrate", when performing the deposition processes as discussed above in Veerasamy (WO), in view of Knapp et al., or vice versa. It is further noted that Klemm et al. has further relevant teachings with respect to known & desirable anti-reflecting coatings, such as set forth on column 6, lines 27-65, which discuss a preference for the anti-reflecting coating be in a multilayer film comprised of three or more dielectric materials of alternating high & low refractive indexes, where these materials include silicon oxide is & zirconium dioxide. Thus cumulative to the above rejection, it would've been further obvious to use antireflection stacks configured as claimed, including with overlying protective hydrophobic coatings, as such are further suggested by the teachings of Klemm et al. with respect to appropriate antireflection coatings for ophthalmic lenses, & especially considering a preferred minimum number of multilayers is taught to be three anti-reflecting coating, and they include claimed alternating materials of silicon dioxide & zirconium dioxide, thus there are only two possible orders for alternating such low & high refractive index materials, where either order would reasonably have been obvious to one of ordinary skill given these specific teachings or the combined teachings with respect to refractive indexes of Klemm et al. & Knapp et al.

Optionally, **Chien-Shing et al**. (who has teachings analogous to Veerasamy (WO)), provide cumulative reasons why the inclusion of fluorine in the DLC coating would reasonably have been expected to provide desirable & superior results, because the Chien-Shing et al. teachings suggest that inclusion of fluorine provides better adhesion due to reduce stress, thus providing further motivation to

employ fluorine as dopant atoms in the DLC structure, in order to provide improved adhesion, which Knapp et al. also notes is needed & desirable.

As previously discussed, **Chien-Shing et al**. (abstract; col. 2, line 54; [0012-14], esp. col. 4, lines 41-44; [0015], esp. col. 5, lines 25-27; [0027-28], esp. col. 6, line 54-col. 7, lines 11 & 17-20; [0030]; [0034-36], esp. col. 9, lines 25-35; and claims, esp. 1, 3 & 5) teach ion beam deposition of fluorinated diamondlike carbon (FDLC), which may be amorphous, via an ion beam deposition process that employs high vacuum conditions (e.g. $10^{-4}\sim10^{-5}$ Torr) may employ single or plural ion sources of C & F or gaseous halocarbon or solid fluoropolymer source materials may be employed, noting that previously mentioned ([0008]) fluorocarbon sources include CF_4, C_2F_6 & C_4F_8., give a context to the taught gaseous halocarbon that may supply both C & F. It is also taught that inert gas ions such as Ar^+ or Kr^+ may be employed during the ion beam deposition in order to assist in attaining desired sp^3 structure, where [0028] discusses the inert gas ions as supplied from a separate ion source, however the claims are inclusive of claimed inert gas (e.g. rare gas) ions plus C & F ions all coming from a single source, thus the reference may be consistent with applicants' feeding at least one rare gas to the ion gun in the mix containing F & C; or as this combination is not explicitly set forth in the body of Chien-Shing et al's specification, given the claims & teachings, specifying single ion source, with the specific reason for employing inert gas ions, plus the general knowledge of one of ordinary skill in the art that inert gas is conventionally & typically employed as a carrier gas for vaporized material, such as taught halocarbon (e.g. fluorocarbons), it would have been obvious to one of ordinary skill in the art to employ inert gas as part of the gaseous mixture, when using the taught single ion source, as such is consistent with the overall teachings therein, with reasonable expectation of producing taught results.

Chien-Shing et al. also teach that as their deposition techniques for FDLC layers produces relatively low stress, this low stress improves the adhesion to substrates, such as silicon, silicon dioxide, Al, TiN, & glass, by reducing the tendency of the layer to delaminate from the substrates (e.g. increases adhesion), with increasing F concentration tending to decrease stress, thereby improving the adhesion with respect to films with more stress. This teaching concerning relative improved or increased adhesion has relevance broadly to deposition on substrates required to be abrasion resistant, where one of ordinary skill in the art would further notice that materials listed therein to which adhesion is improved are generally old & well known to be relevant to antireflection films.

7. **New art** of interest includes: **Finley et al**. ((2003/0221481 A1), [0027-36], etc.), with further teachings of interest with respect to optical substrates, refractive index coatings & employing physical deposition techniques; and **Scherer et al**. (WO 02/11195 A1), published 2-2002 by the present inventors, where the abstract indicates employing beams of ions from polyfluorocarbon compounds & rare gas for deposition of low-index antiglare films onto silicon oxide films, with figure 1 depicting essentially the same apparatus as presently employed & which is also inputting oxygen gas, however lacking a translation further relevance cannot be readily determined.

Other art of interests previously cited included: **Veerasamy et al**. (5,858,477) incorporated-by-reference in Veerasamy (WO) discussed above for various alternative ion beam apparatus useful for depositing highly tetrahedral amorphous carbon & **Hartig et al**. (5,376,455) also incorporated-by-reference in Veerasamy (WO) for examples of useful multilayer "Low-E" optical coatings.

8. Applicant's arguments filed 3/9/2010 & 7/7/2010, discussed above, have been fully considered but they are not persuasive.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. **Any inquiry** concerning this communication or earlier communications from the examiner should be directed to **Marianne L. Padgett** whose telephone number is **(571) 272-1425**. The examiner can normally be reached on M-F from about 9:00 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks, can be reached at (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Marianne L. Padgett/
Primary Examiner, Art Unit 1715

MLP/dictation software

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